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Developments of student involvement in geoscience unions: a case study from hydrology

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The American Geophysical Union (AGU) and the European Geosciences Union (EGU) play a central role in nurturing the next generation of geoscientists. Both organizations are now explicitly expanding their bottom-up organizational structure to include early career members¹ (hereafter, ECM), by appointing student (AGU) and [early career scientist](#) (EGU) representatives. As this is a recent development, it is unclear what role these representatives can play and how this role will evolve over the coming years.

As ECM in the hydrological sciences, we here provide a case study on how bottom-up initiatives, working closely together with the newly appointed representatives, help to improve the development of student and post-doc members, and provide opportunities to increase their contribution to the geoscience unions. Additionally, we call for a conversation on how ECM can best make use of the created opportunities to proactively engage with the Unions' activities aiming at the development of their youngest members.

Growing Opportunities for Early Career Members

The AGU and EGU have a long history of actively supporting students by providing reduced conference fees, recognizing outstanding students, and awarding travel grants. The representation of these members has been improved with the recent appointment of representatives for the different scientific divisions within both AGU and EGU. This is an important development, as these representatives will serve as the link between Union divisions and its ECM. However, as Union's do not want to constrain bottom-up initiatives, precise aims and goals of these representatives have not been defined.

But what is the potential and what are the most important tasks of these new representatives? With approximately one quarter of the Unions' active membership being students or young scientists [1, 2] there is an opportunity to more actively include a new generation of geoscientists also as contributors of the Union's activities, rather than merely consumers. Hence, the representatives should think, discuss, define and communicate what their objectives are and how these objectives can be achieved. Opinions on these objectives may differ per person, field of study, or geoscience organization, and are likely to change over time. Rather than providing a blueprint for what should be done, we try to catalyze this discussion by providing an example of how this process is evolving within the hydrological sciences community.

¹ Student and postdoc members; exact definitions different for [EGU](#) and [AGU](#).

A Case Study from Hydrology

During the 2012 EGU General Assembly in Vienna we identified that there was no organizational structure for the involvement of ECM in the EGU Hydrological Sciences Division, nor were they very actively involved within the division. It was clear that with so many of them being part of the division, there was enormous potential to increase ECM involvement. Not only to enhance their own conference experience, but also to improve their contribution to the organizing part of the hydrologic community. This was the key motivation behind the establishment of the [Young Hydrologic Society](#) (YHS) in October 2012.

YHS is a bottom-up initiative to engage ECM from across the globe with an interest in hydrological sciences and aspires to function as an umbrella organization for many aspects important to early career hydrologists. It is an independent organization, not solely founded within a single Union. This allows that ideas and sessions can be transferred seamlessly between different conferences.

The organizing committee is composed of volunteers currently spanning across three continents. The representatives within the AGU and EGU hydrology divisions are among the active members of the YHS team. This involvement facilitates good communication and cooperation between any initiatives in both unions.

To ensure activities represent the need of a broader group than the organizing team, the YHS hosts an annual public meeting at both the AGU Fall Meeting and the EGU General Assembly. In this meeting we invite ECM and together evaluate objectives, define goals and create opportunities for people to get involved. Based on these meetings five current objectives have been established:

- 1) connect hydrologists early in their careers,
- 2) organize events to enhance the professional development of early career hydrologists,
- 3) provide central information platform for early career hydrologists,
- 4) create awareness of current and future research topics within hydrology, and
- 5) make hydrological science more accessible for involvement of early career hydrologists.

To achieve these goals we created a [website](#) to provide notification of upcoming conferences, workshops, events, free online lectures, and other relevant information. There is also a

number of social media platform including a [LinkedIn group](#), [Facebook group](#) and [Twitter account](#) that keeps all members, friends and followers digitally connected.

Additionally, the YHS organizes sessions, short courses, and social events at the AGU Fall Meeting and the EGU General Assembly. An example, aimed at increasing the awareness of present challenges in hydrological science, is ‘[Meet the expert in hydrology](#)’. This session is an open discussion with experienced scientists on current and future research challenges within (and beyond) hydrological science. To create further awareness of future research challenges, the Water Science Pop-Ups are organized. This session invites particularly those embarking on a career in hydrology to share their vision on the future of water science with a 5-minute TED-style presentation. The Water Science Pop-Ups was first organized at the [2013 AGU Fall Meeting](#), nearly doubled in participation and attendance for [2014](#), and now also runs at the [EGU General Assembly](#). At the 2014 Fall Meeting, YHS put together the inaugural [AGU Student and Early Career Science Conference](#) [3]. This full day conferences is now an annual event including networking, workshops, and discussion sessions where students interact with senior scientists.

This overview of activities illustrates how initiatives can contribute to enhanced involvement of ECM in geoscience organizations. Yet, we realize these initial activities have been developed in a somewhat ad-hoc manner and there is always room for improvement.

Start the conversation to move forward

The example from hydrology may give an indication of how ECM initiatives can evolve and could be replicated by other divisions. However, the example from hydrology, to a large degree, does not answer what the full potential of ECM involvement is, and what the most important tasks are of the representatives.

We call for a conversation that addresses these questions. Early career members, including their representatives, and the leadership within the geoscience Unions should ask themselves and another: what can the Unions do for the ECM, and what can the ECM do for the Unions? Current goals seem to include enhanced networking opportunities and organization of short courses, but probably there are uncovered opportunities far beyond that.

118 With the current the free role that the Unions give to the representatives some ad-hoc short-
119 term contributions are made. Given the representatives short terms of service (1-2 years) and
120 that they are often operating individually, has the risk that contributions are perishable.

121 Involvement of ECM in geoscience unions is not a panacea to all challenges faced by those
122 embarking on a career in geoscience. But, given the current support from the unions, it is the
123 ECM's responsibility to get organized and make the best use of this opportunity. To make the
124 most valuable contribution, objectives should both encompass short-term improvements that
125 spur momentum and long-term change to more actively engage ECM enthusiasm and
126 creativity in shaping a better geoscientific future.

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